

What is claimed is:

- 1 1. A method for identifying pathogens, comprising:
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  - 3 providing an image;
  - 4
  - 5 processing the provided image with an image
  - 6 segmentation algorithm to isolate at least one
  - 7 segment of the provided image that has a feature
  - 8 that is of interest; and
  - 9
- 10 comparing the isolated segment of the provided image to
- 11 a plurality of reference images to determine if the
- 12 isolated segment corresponds to any of the reference
- 13 images.
- 14
- 15 2. The method according to claim 1 wherein the step of
- 16 providing the image comprises acquiring the image.
- 17
- 18 3. The method according to claim 2 wherein the step of
- 19 acquiring the image comprises processing the acquired
- 20 image to provide pertinent portions of the acquired
- 21 image.
- 22

1   4.   The method according to claim 2 wherein the step of  
2   acquiring the image comprises digitizing the acquired  
3   image.

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5   5.   The method according to claim 4 wherein the step of  
6   acquiring the image further comprises digitally enhancing  
7   the digitized image.

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9   6.   The method according to claim 5 further comprises  
10   storing the digitally enhanced image in a data storage  
11   device.

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13   7.   The method according to claim 1 wherein the provided  
14   image comprises an image of a specimen.

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16   8.   The method according to claim 1 wherein the provided  
17   image comprises a dental x-ray.

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19   9.   The method according to claim 1 wherein the image  
20   segmentation algorithm comprises a recursive hierarchical  
21   segmentation algorithm.

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23   10.   The method according to claim 1 wherein the step of  
24   comparing the isolated segment to the plurality of

1 reference images comprises:

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3 processing the isolated segment with a data mining  
4 algorithm to extract particular image data from the  
5 isolated segment; and

6

7 processing the extracted particular image data and each  
8 of the reference images with a optical recognition  
9 algorithm to determine if the extracted particular  
10 image data matches any of the reference images.

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12 11. The method according to claim 10 further comprising:

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14 providing a display device; and

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16 displaying the extracted data and the results of  
17 processing the extracted image data and each  
18 reference image.

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20 12. The method according to claim 1 further comprising  
21 providing a data base having a plurality of reference  
22 images stored therein.

23 13. A system for identifying pathogens, comprising:

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1       a device to provide an image;

2

3       a data base having at least one reference image stored

4       therein; and

5

6       an image processing resource to (i) process the

7       provided image with an image segmentation algorithm

8       to isolate at least one segment of the provided

9       image that has a feature of interest, and (ii) to

10      compare the isolated segment of the provided image

11      to the reference image to determine if the isolated

12      segment corresponds to the reference image.

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14     14. The system according to claim 13 wherein the device

15    comprises a device to acquire the image.

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17     15. The system according to claim 14 wherein the device

18    comprises a digitizer to digitize the provided image.

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20     16. The system according to claim 15 wherein the device

21    further comprises an enhancer device to digitally enhance

22    the digitized image.

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1    17. The system according to claim 16 further comprising  
2    a data storage resource for storing the digitized images.

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4    18. The system according to claim 13 wherein the  
5    provided image comprises an image of a specimen.

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7    19. The system according to claim 13 wherein the  
8    provided image comprises a dental x-ray.

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10   20. The system according to claim 13 wherein the image  
11   segmentation algorithm comprises a recursive hierarchical  
12   segmentation algorithm.

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14   21. The system according to claim 13 wherein the image  
15   processing resource is configured to process the isolated  
16   segment with a data mining algorithm to extract image  
17   data from the isolated segment.

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19   22. The system according to claim 21 wherein the image  
20   processing resource processes the extracted image data  
21   and the reference image with a optical recognition  
22   algorithm to determine if the extracted image data  
23   matches the reference images.

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1    23. The system according to claim 22 further comprising  
2    a display device to display the extracted data and the  
3    results of processing the extracted image data and the  
4    reference image with the optical recognition algorithm.

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6    24. The system according to claim 13 wherein the image  
7    processing resource comprises a paralleling processing  
8    resource.

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10   25. The system according to claim 24 wherein the  
11   paralleling processing resource comprises a Beowulf  
12   cluster.

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14   26. The system according to claim 13 wherein the device  
15   comprises a video camera.